Exploring Strategies for Growth of the Aceh Port System: A Conceptual Framework[1]

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Abstract

Devising and formulating strategies for growth have become a crucial of any firm's strategic management activity including ports to achieve and sustain growth and competitive advantage. Aceh ports, located at the world busiest shipping lane of the straits of Malacca, have almost all advantages to grow to become major ports in the region but unfortunately, in fact, the ports have been experiencing problems to grow for many decades. This might be, according to the literature, due to many ports have problems of ill-formulated and poorly implemented strategies set in place and of unclear mechanisms of port growth, or facing the dilemma of that they don't have enough variety and enough testing in their strategies or they just simply experience what is labeled as strategy decay. In this paper, we attempt to explore how a port grow, identify sources and factors that contributing to port growth, and to formulate relevant and unique strategies for growth. The paper focuses on the business aspects rather than the political side. This paper demonstrates that in order to achieve and sustain growth, Aceh port system should employ various strategies and each of those strategies has its own stages of application by taking into account the level of competitiveness of the industry. The paper comes out with a concept of growth strategies for a port system and sustained competitive advantage that might be applied for Aceh ports and other ports system.

Keyword: growth strategy, port system, strategic management, Malacca Straits, Aceh

INTRODUCTION

In the last few decades, the world has witnessed a rapid changing of global trade movement and remarkable growing of goods demands or the so-called *globalizing market place* (Robinson 2002) or *globalization of port logistics* (UNCTAD 2007, 2008). This reality is triggered by a towering growth of the world population, commodities, and the increasing economic prosperity as well as the new inventions in maritime and shipping technology.

Port and shipping industries have experienced great transformations to support the innovation and development in maritime industry sectors with necessity infrastructures and services. One of the major and important changes that have been brought to the port and shipping industries is the use of

[1] This paper is prepared for the International Conference on International Studies,4-6 December 2008, at the Institute of Diplomacy and Foreign Relations (IFDR), Kuala Lumpur, Malaysia

containerization in the way of how goods are transported (Notteboom 2004, Peng & Xueyue 2003, Fung 1994). Containerization has enabled the physical transfer of goods from one mode to another easily into one single system. Many developed and developing countries have relied very much upon the container system for their international trade especially through ocean liner. For instance, at least 85 per cent of China foreign trades (Peng & Xueyue 2003) and 89.6 per cent of global trades (UNCTAD 2008) were transported using the ocean transportation.

In responding to these trends, studies and researches on design, size, and capacity of the containerships have been carrying out continuously to produce larger and faster vessels. Design and making of ultra large and modern containerships is becoming a never-ending competition. At this time, mega containerships of 9,000-11,000 TEU[2] are already in operation. For instance, *Emma Maersk* of A.P. Moller-Maersk Group is the biggest containership ever built so far with capacity of 11,000 TEU and the ship has 397 meters length, 56 meters breadth and 14 meters *draft*[3] (Maersk 2008). *Samsung Heavy Industries* (SHI) in Korea has been successfully developed containerships double in terms of its capacity only in 7 or 8 years. SHI developed a containership of 6,200 TEU in 1999 and 9,600 TEU in 2003 and they are in progress of developing eight ships of 13,300 TEU since 2007 that will be in use by 2011 (Samsung Heavy Industries 2008).

Lloyd's Register as quoted by Global Security Organization (2006) announced that a study on innovative design carried out by *Germanischer Lloyd* and *Hyundai Heavy Industries* has resulted a design of 13,000 TEU containerships with 382 meters length, 54.2 meters width and draft 13.5 meters. *Global Security* also expected that in the next 10 years (from 2006), containerships of 18,000 TEU, with 60 meters length and maximum draft 21 meters will be built. This is simply because a research conducted by their experts shows that this huge containership is possible to be developed.

As a consequence, according to Robinson (2002), the rapid transformation and development within the industries will significantly affect to structural and functional changes to ports and port authorities. In this such a situation, port authorities and port managements need to define the new core business of the port, to identify an appropriate strategic intent as described by Hamel and Prahalad (1994, 1988), to specify relevant core and threshold competencies and to position the port for growth.

However, according to Magala (2004), many ports (regional ports) are experiencing problems of ill-formulated and poorly implemented strategies set in place and of unclear mechanisms of port growth or in Hamel's (2001) view, many firms, including ports, are facing the dilemma of that they don't have enough variety and enough testing in their strategies or they just simply experience what Hamel and Valikangas (2003) labeled as strategy decay which is replicated, supplanted, exhausted, and eviscerated. Too overcome these problems, study is always in need to learn how ports grow, to identify sources and factors that contributing to port growth, to formulate relevant and unique strategies for growth and to understand perceived strategies for growth of port authority. This kind of study is essential for port development, growth, and survival and to achieve sustainable competitive advantage of the port; and this paper attempts to achieve small part of it for Aceh seaport system.

ACEH AND THE STRAITS OF MALACCA

The number and type of vessels pass through the Straits of Malacca is now increasing drastically. According to Zubir (2007), every year more than 50,000 cargo ships use the straits or more than 30 per cent of the vessels are containerships (The National Maritime Portal Malaysia 2008). Most of these containerships will be berthed at several ports in the straits to load and unload containers at the ports.

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[2] TEU stands for twenty-foot equivalent unit that is one of the standard units used for containerization. Another unit used is FEU (forty-foot equivalent unit)

[3] *Draft* or also spelled as *draught* is the height of the lowest part of a vessel to seawater surface during the maximum load.

Vessel traffic congestion, growing ship sizes, highly growth of the market, and depth limitation facing by the Straits will contribute negatively to future development of ports (UNCTAD 2008) especially in the Straits of Malacca where in fact the statistics show that commodities demands through containerization are vastly increasing (Port Aid 2008). Therefore, well-defined strategies are needed for the growth of the ports in the region such as development of new or up-graded ports in the deepwater of the region that be functioned as *transhipment* or *hub port* will perhaps be a sound strategy to sustain competitive advantage.

As the consequence of containerships increase, the throughputs activities at several ports in the World and especially in the Straits of Malacca are also significantly increase from year to year (PSA 2007, 2008 and Port Aid 2008). The average increase of container throughputs for the world is sharply increased at 6.7 million TEU per year. If we look at the throughputs activities at the top 10 main container ports in South Asia where the Malacca Straits located, we will find that there was 6.7 million TEU increased or 13.17 per cent for year 2006 compared to year 2005. The throughputs also increased for 17.73 per cent in East Asia region, the closest neighbor to South Asia region (see table 1).

Aceh, sitting at the northern tip of the island of Sumatra and becoming a west-gate keeper of the Straits of Malacca, geographically offers important shipping lanes throughout the region and to ports' hinterland of Indonesia. Strategically, with its rich resources and its position surrounded by the fastest growing regions of the world economy, China on the right side and India on the left side, and its location in one of the major markets of the world container shipping, Aceh ports naturally has opportunities and capabilities to grow (see figure 1).

Aceh with the population of 4,223.8 thousand in 2007 and with area of 56,500.51 square kilometers is the fourth biggest province in Sumatera Island whose area is about 446,686.68 square kilometers constitutes 24.01 per cent of total area of Indonesia to be the second largest island in Indonesia. Aceh's average monthly income per capita as in 2007 is Rp.1,275,908 makes up the third highest average monthly income in Indonesia after Papua and Jakarta (BPS 2008).

Recently, the Government of Aceh has announced a plan to upgrade and redevelop several ports in Aceh with the assistance from the United Nations for Development Programs (UNDP) and other bodies (Aceh Government 2008). Aceh port system comprises of eight ports and five of them facing the Malacca Strait. Two of the five ports are deepwater functioning ports (UNDP 2005) i.e. Sabang Port which is located at the northern tips of the Malacca Straits from Sumatera Island side and Lhokseumawe Port in North Aceh. The position of Sabang as a centre for trading and port has been retaken into account since 1993 (Syaiful 2007) in relation to the establishment of Indonesia, Malaysia and Thailand Growth Triangle (IMT-GT). Sabang has been stated as *The Integrated Economics Development Region* (KAPET) through President Habibie decree No.171 dated 26 September 1998 and in 2000, President Wahid has stated the region as the Free Trade Zone (FTZ) and the Free Port Zone or FPZ (Syaiful 2007, Mawardi 2007). On the other hand, Lhokseumawe Port is benefited of being a commercial port close to the industrial and agricultural regions of Aceh.

Aceh, geographically, has locational advantage of being positioned at one of the world busiest shipping lane of the straits of Malacca (see figure 1). With this position, Aceh ports have a broad accessibility to shippers. In addition, Aceh seaport system is situated within IMT-GT regions and has a lot of unique resources that can be used to complement for the port growth. But in fact, despite having those values and resources, Aceh port system is still having problems to grow as major and dynamic ports in Indonesia and in the region that maintain and increase competitiveness. At one point, as pointed out by some abovementioned authors, many ports including Aceh ports are facing problem of ill-devised and poorly implemented strategies and of unclear mechanisms of port growth in all aspects. At another point, Aceh ports are surrounded by and in the shadow of world huge and busiest ports like Port of Singapore, Port Klang and Port of Tanjung Pelepas that always enhance their advantages and values that likely difficult for other ports in the region to compete.

Table 1 Comparison of throughputs activities and growth in South and East Asia

Port Rank*	Region, Country and Port Name		Throughputs 2006	Throughputs 2005	Percent Growth	
	South Asia					
1	Singapore	Singapore	24,792,400	23,190,000	6.91	
2	Port Klang	Malaysia	6,300,000	5,543,530	13.65	
3	Tanjung Pelepas	Malaysia	4,770,000	4,177,120	14.19	
4	Laem Chabang	Thailand	4,215,817	3,793,800	11.12	
5	Jakarta	Indonesia	3,347,000	3,281,580	1.99	13.17
6	JNP	India	3,300,000	2,670,000	23.60	
7	Colombo	Sri Lanka	3,079,132	2,450,000	25.68	
8	Manila	Philippines	2,638,000	2,625,150	0.49	
9	Ho Chi Minh	Vietnam	2,532,000	2,030,510	24.70	
10	Surabaya	Indonesia	1,859,737	1,700,000	9.40	
		Total	56,834,086	51,461,690		
	East Asia					
1	Hong Kong	China	23,539,000	22,602,000	4.15	
2	Shanghai	China	21,710,000	18,084,000	20.05	
3	Shenzhen	China	18,469,000	16,197,000	14.03	
4	Busan	South Korea	12,039,000	11,840,450	1.68	
5	Kaohsiung	Taiwan	9,774,670	9,471,060	3.21	17.73
6	Qingdao	China	7,702,000	6,307,000	22.12	
7	Ningbo	China	7,068,000	5,208,000	35.71	
8	Guangzhou	China	6,600,000	4,683,000	40.94	
9	Tianjin	China	5,950,000	4,801,000	23.93	
10	Xiamen	China	4,018,700	-	-	
		Total	116,870,370	99,193,510		

* Ranking is based on 2006 throughputs

Data source: Port Aid (2008)

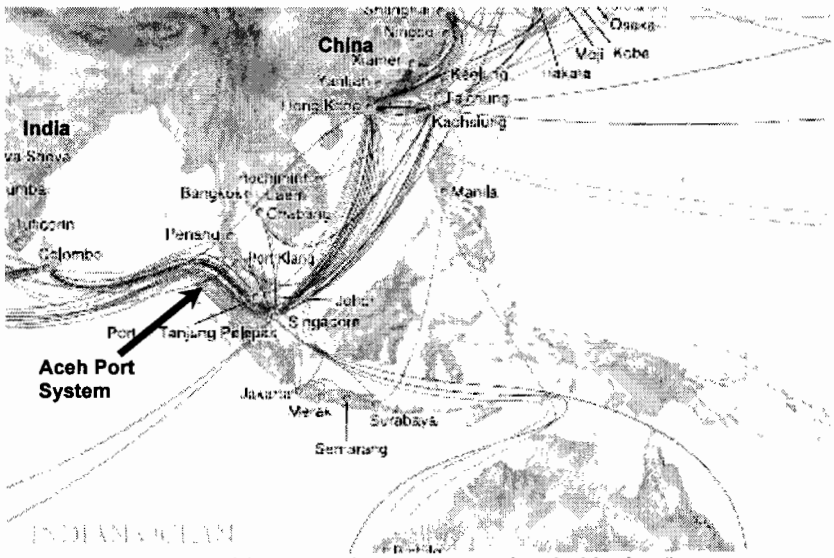


Figure 1: Position of Aceh at the International Shipping Routes.
Source: Supply Chain Leaders (2008)

GROWTH STRATEGIES: A CONTRIBUTION FROM THE THEORIES

The concept of competitive advantage by Porter (1990a) is still critical and central to port growth strategies (Robinson 2002, and Magala 2004) and the essence of strategy formulation is dealing with competition (Porter 1980, 1998) and it is choosing to perform activities differently than rivals do (Porter 1996). According to Robinson (2002), port's advantage is something created for shippers and their ancillary service providers. To achieve this advantage, a port should afford it through *competitive strategy.*

Porter (1990a) describes that firms create and sustain competitive advantage through competitive strategies that are unique to the firm and superior to competitors. Competitive strategy, according to Dussauge and Garrette (1999), is based on the idea that, in order to survive in the face of competition, a firm must create and sustain durable and defendable competitive advantage. In firms, competitive advantage is created and sustained through a highly localized process.

There are five basic forces that shape competition in an industry (Porter, 1980; 1998). The five forces is categorized in two threats namely 'threat of new entrants' and 'threat of substitute products or services' and two bargaining powers namely 'bargaining power of suppliers' and 'bargaining power of customers', and 'jockeying for position or rivalry' (Porter 1990a) among current competitors. In explaining competitive strategies, Porter (1990a) generates what he called as 'generic strategies' that comprise of cost leadership, differentiation, and focus.

Hamel and Prahalad (1988, p.12) constructed a framework for analysis in responding to global competition focuses on two aspects; (1) the various types of international competitive advantage; and (2) contrasting strategic intentions. They pointed out that there are three types of internationally based competitive advantage that may be enjoyed by a firm: (1) *location-specific advantages* based on national differences in factor costs; (2) *extra-national economies of scale* and experience effects dependent on international volume; and (3) *global distribution* that leverages cost advantages and creates new barriers to entry. They also identified three types of strategic intentions: (1) *building global presence*; (2) *defending domestic dominance*; and (3) *overcoming national fragmentation.*

In many cases, firms need to establish alliances to compete with rivals. Strategic alliances are aimed at creating and enhancing the competitive positions of the firms involved, in a highly competitive environment (Dussauge and Garrette 1999). They describe that there are two major driving forces that led firms into significant numbers of alliances i.e. the globalization of trade and the acceleration of technological change. They opined that transaction cost theory developed by Coase (1937) plays a central role in the analysis and interpretation of alliances. According to the theory, firms are created and grow by replacing the market in areas where the market is fully not efficient. It is more efficient to organize particular exchanges within a firm rather than letting the market regulate firms. This can be determined by comparing the costs of using the market (known as 'transaction cost') with the costs of organizing the same exchanges within a structured firm.

However, internal exchange may lead to increasing organization costs. As it is known, reducing transaction costs may lead to increasing of production costs and vice versa. This phenomenon is well explained in theory of economies of scale. To avoid expensive costs of using the market, increasing organization costs, and production costs, alliances appear to be an intermediate solution (Williamson 1979, Dussauge and Garrette 1999). All of these strategic alliances can be applied to ports through what we classify as *cooperative strategy.*

According to Mahoney and Pandian (1992) the resource-based approach is an emerging framework that incorporates concepts from mainstream strategy research concerning a firm's unique competencies and heterogeneous capabilities, provides value-added theoretical propositions. This approach also has the objective to achieve sustainable competitive advantage of a firm. For this,

according to Barney (1991), a firm resource must have four attributes: (a) it must be valuable, in the sense that it exploits opportunities and neutralize threats in a firm's environment, (b) it must be rare among the competitors, (c) it must be imperfectly imitable, and (d) there cannot be strategically equivalent substitutes for this resource.

Many authors (Barney 1991, Magala 2004, Napier and Nilsson 2006, Hussain et al. 2006, Ray and Ramakrishnan 2006, Wang and Ahmed 2007, Cheng and Yeh 2007, Menon 2008) consider competency or capability that shape *competence-based strategy* is an extension and a complement to resource-based approach to competition. However, as competency and capability are specific and unique resources, this study explains competence-based approach separately.

Hamel and Prahalad (1994) perceived that core competencies are the soul of a firm and the entire management team must fully understand and participate in the five competence management tasks: (1) identifying existing core competencies; (2) establishing a core competence acquisition agenda; (3) building core competencies; (4) deploying core competencies; and (5) protecting and defending core competence leadership. Firms should understand all the competencies outside the firm and formulate the possibilities to place those things together (Hamel 2001).

An important point for port growth strategies, according to Robinson (2002) is the notions of market-focused firms. According to Buzzel *et al.* (1975), market share is widely recognized as one of the main determinants of business profitability. Firms that have reached a high share of the markets they serve are considerably more profitable than their smaller-share rivals.

Buzzel *et al.* (1975) classify *market share strategies* into three groups: (1) *Building strategies* that are based on active efforts to increase market share by means of new product introductions, added marketing programs, and so on. If the market-share of a business falls below its lowest, it usually has two strategic choices: increase share or withdraw. When share is not as low as to dictate withdrawal, but is still not high enough to yield satisfactory returns, managers can consider aggressive share-building strategies. They should know that (a) big increases in share are seldom achieved quickly; and (b) expanding share is almost always expensive in the short run. (2) *Holding strategies* that are designed to maintain status quo which is the existing level of market share that represent by a key question: What is the most profitable means to preserve market position? (3) *Harvesting strategies* that are designed to achieve high short-term earnings and cash flow by permitting market share to decline.

Aaker and Day (1986) notify that the danger of the belief that high-growth markets are more attractive than mature or declining markets which is based upon assumptions that easier to gain share and worth more, the experience curve will lead to advantage, less price pressure, access to the technology, and future entries will be deterred. Even though growth markets do represent opportunities but they also symbolize substantial risks and challenges. There are two essential causes. First, a visible growth market can attract so many competitors. Second, the early entrant is unable to cope when key success factors or technology change.

Hamel and Prahalad (1994) underline that competing for the future requires not only a redefinition of strategy, but also a redefinition of top management's role in creating strategy. Competition for the future is competition for opportunity share. In competing for opportunity share, firms, according to Hamel and Prahalad (1994), must answer questions: what future opportunity share are firms likely to capture? Which new competencies would firms have to build? And how would firms' served market have to change? It is highly probable (almost certain) that there will be profitable opportunities for expansion. We cannot assume that the larger firms will be able to take advantage of all of the opportunities open to them (Penrose 1956). According to Porter (1998), first-movers always enjoy some competitive advantage because they initiate actions which face virtually no competition.

PORT GROWTH STRATEGIES: LEARNING FROM OTHER PORTS EXPERIENCES

Ports, especially large gateways, are facing problems that affect to their growth and efficiency. The lack of land availability for expansion, deep-water requirements for handling larger ships, increased port traffic, environmental constraints and local opposition to port development are among factors identified by Notteboom and Rodrigue (2005) as lead to those problems. Notteboom and Rodrigue (2005) tried to reformulate a model for effective port development. They studied previous model developed by Bird (1980) which is called Bird's *anyport* model that in their view the model has some weaknesses in explaining contemporary concept of port development. Therefore, Notteboom and Rodrigue (2005) add a new phase of the port development by giving stronger links or network with their hinterland and of intermediary/transhipment ports with stronger links with their foreland and the feature is called regionalization. They argued that regionalization expands the hinterland reach of the port through a number of market strategies and policies linking it more closely to inland freight distribution centers.

Notteboom and Rodrigue (2005) argue that there are many factors behind the emergence of hubs and one of them is to have greater depth to accommodate modern containership drafts, placing them at technical advantage. Port operators realized that limitation of the sea depth is becoming problems for future port development in addition to global demand. Regionalization of port activity, in Notteboom and Rodrigue's opinion can offer solution to effective port development model. Port authorities should take into account inland distribution network for port competitiveness.

Port operators nowadays are starting to be as multinational companies. Song (2003) argued that many ports used to engage in local services are now widening their business scope to regional and global level. At this point, competition and cooperation among ports is needed. Song suggested that ports should concentrate on *coopetition* as a strategy which is a combination of cooperation and competition. Song did a case study of ports of Hong Kong and South China. The study found that searching and maintaining a good balance between competition and cooperation is a very crucial factor for successful of the ports.

Brodin (2003) in his research studied ports in Baltic sea and formulated several external factors that contributing to future condition of the ports, i.e. changes in local and regional policy and regulation, competition among existing ports, the emergence of new ports and new type of ships, technology innovation and new transportation mode.

A broad discussion on how international shipping companies and container terminal operators interact in competition and cooperation, brought by Wang and Slack (2004). They explain the issue in relation to the governance of the two largest ports in mainland China namely Shanghai and Ningbo with the central and local government of China. Their study focuses on the efforts of the Shanghai Government to establish a regional hub port. They studied the role of port authorities in port internal governance and the crucial influences of government on the port external governance. They found that the lack of good regional governance is due to structural problems in administration and proactive involvement of Shanghai government in port development construction is something perceived negatively by them. The case of Shanghai shows that port exploitation by government is still happening through a series of public regulation especially in the region whereby shipping and transportation companies are not a key player in the game.

Loo and Hook (2002) tried to develop an understanding of future prospect of container ports by taking into consideration changes of local, national, and international factors. Loo and Hook found that Hong Kong government policies are inconsistent with national and international trend related to better integrated port development with inland distribution system i.e. road and rail system. They argued that in future the competitiveness of Port of Hong Kong relied on inland services of China mainland which is broader services and more economical by using railway system compared to road and river canal. It

was suggested the government to strengthen inland connection i.e. railway infrastructure and to broaden the port hinterland to provinces in mainland China.

Faizal (2003) studied strategy used by Singapore by focusing on development cooperation between India and Singapore. This cooperation in Faizal's view is rather the great competitiveness facing by Singapore with its ASEAN counterpart especially Malaysia ports. Faizal argued that strategy used by Singapore in investing in Indian port is for two aims: to broaden its international operation and to avoid the lack of land availability for expansion facing by them.

In relation to port future expansion, Hoyle (1999) studied opportunity for growth for Port of Mombasa in Kenya. Hoyle argued that the port has opportunity to grow as it has deep-water and located at a strategic international maritime transit. He described some competitive factors contributing to future development of the port in terms of location, history, environment, and inland infrastructure availability. However, for this purpose, Hoyle suggested to develop the port as a free port concept in Mombasa. Hoyle argued that free zone and free port is an integral part of port policy in attracting shipping traffic. To add to this concept, Hoyle analyzed that Manda Bay is a suitable for port development due to its strategic location and availability of land for expansion with relative low cost and hinterland communication should be developed well.

A study by Fung (2001) shows interactions among main ports in East and Southeast Asia. Fung developed a model to forecast a good time to develop new container terminal by considering growth side of Hong Kong port. Fung found that increasing in production cost experienced by Japan, South Korea, Taiwan, Hong Kong and Singapore has forced *manufacturers* moving their operation to region with lower cost like China, Thailand, Indonesia, Malaysia and the Philippines. However, inadequate facilities owned by the ports in the region has resulted huge cargoes unhandled. As a result, the manufacturers have to deliver their cargoes to main ports in East and Southeast Asia. In this situation, Hong Kong benefited to be exporting channel of foreign investment products in South China, whereas Singapore becomes an exporting channel of those products in Southeast Asia. For illustration, Fung stated that around 70 per cent Indonesia export commodity and 50 per cent of Malaysia commodity exported through Singapore.

New function of existing ports might influent other ports to grow and sustain competitiveness as described from a study by Yap *et al.* (2006). In their study, they observe that ports of Hong Kong, Busan, and Kaohsiung will be challenged greatly by the emergence of new transshipment port like Shanghai, Shenzhen, Kwangyang, and Qingdao in container traffic. The study concluded ports in China mainland give a good attraction to main shipping companies through *direct ports of call*. The main load centers will compete intensively with ports located closely but using similar hinterland as Hong Kong with Shenzhen, Busan with Kwangyang, Shanghai with Ningbo, Qingdao with Tianjin, and so forth (Yap *et al.* 2006).

Cullinane *et al.* (2005) did a comparative study on how two neighboring ports compete one another. They analyzed competitiveness between Port of Shanghai and Ningbo in China based on charges and service quality. The study found sustainable economic development at hinterland, central government policy upon regional development, and the relationship between China and World Trade Organization (WTO) all will give contribution to increasing demand of port services. However, Cullinane *et al.* (2005) argued that Ningbo will continuously get bigger market as a result of having natural advantage such as deep-water. Furthermore, to understand ports relationship, Yap and Lam (2004) viewed from the theory of demand. They used micro economic theory in analyzing and examining competition and cooperation between ports. For holistic purpose, they combined Porter's model. According to Yap and Lam, competition assessment should be based on the ability to create real profit and job opportunities created by port or port-related activities, and not are based on the ability to attract cargo or container as many as possible.

GROWTH STRATEGIES FOR ACEH PORTS

There is no single strategy considered as the most powerful growth strategy for Aceh ports. Devising and formulating various strategies is likely the best thing that the ports can strive for. Each strategy is not superior to others in general, but in fact, appropriateness of the use of the strategies in a time should take into account with the consideration of level of competitive environment.

At least, there are six strategies that Aceh ports should consider for growth (see figure 2): resources-based included capability or competence-based strategy, market share strategy, opportunity share strategy, competitive strategy, and cooperative strategy (strategic alliance). In some literatures, capability or competency is categorized separately from resource-based strategy but in this paper we described it jointly simply because capability and competency is part of port resources.

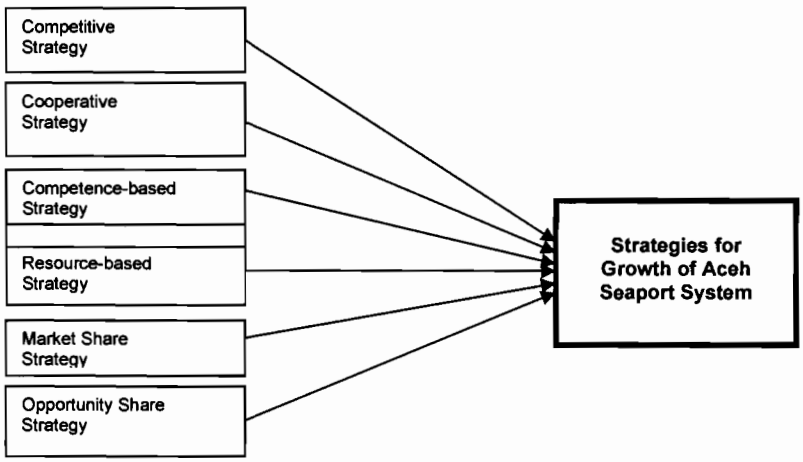


Figure 2: A Concept for Growth Strategies of Aceh Port System
Source: Authors

RESOURCE-BASED STRATEGY

In general, resources can be defined as any tangible (such as personnel and major items of equipment, supplies, money, data, technology, location, and facilities) or intangible entities (time, skill and knowledge, reputation, loyalty, capability and competency) that are available (legally) to a firm for performing operations and accomplishing assignments. We can simply define resources as any factors (assets) that a port can position as inputs in the port operation process.

As in normal business environment, port resources can also be seen as internal resources and external resources (see table 2). The internal resources are resources exist within the port while the external ones are all resources outside the port which are not the property of the port but still can be utilized by the port directly or indirectly through certain conditions such as alliances.

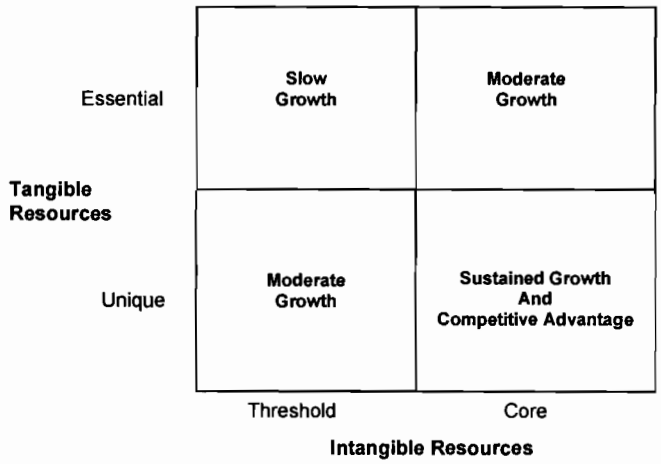
In port, resources play an important role in contributing to port growth as well as in achieving competitive advantage of a port (see figure 3). From the figure, a port that struggle to achieve sustained growth and competitive advantage should employ unique tangible resources combined with core and precise intangible resources.

Growth, no matter how big or small, is the objective of any firm including port and is the sine qua non of port industry success, whereas sustainable growth and competitiveness are the strategic ambition of any port.

Table 2: Port resources diversification

Port Resources			
Internal		**External**	
Tangible	**Intangible**	**Tangible**	**Intangible**
Such as:	Such as:	Such as:	Such as:
- Personnel - equipment - infrastructure - money - Information system - technology - location - accessibility - facilities	- Time - skill and knowledge - reputation - competency - capability	- Experts - infrastructure - technology - market - network - industrial area - environment	- customer loyalty - external expertise - supportive policy and regulation

Figure 3: Role of Tangible and Intangible Resources in relation to Growth and Competitiveness [Source: authors]



In economics, growth is always reflected to the increase in the production of goods and services, and sometimes incomes, over time through economic activity. Penrose (1956) stated that the factors that determine the size of the increments of expansion that any industrial firm can undertake within a given period of time are factors that determine the rate of growth of the firm. For port, growth should be defined as the increase in size, number, volume (quantity) or value, strength (quality) of productivities, services, and competitiveness vis-à-vis its competitors that a port can achieve within a particular time.

The common factors of ports' problems that affect their growth and efficiency are the lack of resources available to them such as land availability for expansion, deep-water requirements for handling larger ships, increased port traffic, environmental constraints and local opposition to port development (Notteboom and Rodrigue 2005). One of factors, i.e. to have greater depth to accommodate modern containership drafts, have emerged ports growing to hub ports, placing them at technical advantage.

Port's Internal Resources

1 Nature, Location, and Accessibility

Aceh ports located at the East-West international trade lanes as of the world's busiest shipping lanes perhaps among the most important advantage for the ports growth. The location creates a significant accessibility to the ports that is ideal for both regional and global transshipment and distribution activities. This locational advantage is an inimitable factor to any competitors.

Moreover, lack of land availability for future development and growth is a common matter facing by a port. Following this, new development of the ports should be located on a green field site that allows the port for future expansion in addition to having naturally sheltered deep water. Comparing to other competitors, the port should have berth depth of at least 15 meters, with no tide restrictions. Turning basin should be more than 600 meters to allow various sizes of ships to maneuver.

This strategic location should be combined with well-developed transport infrastructures allowing multimodal transport for logistics such road and railway, seaport and airport will give the ports an excellent accessibility. The road and rail system is linked to broad highway networks that open inland accessibility for the whole peninsular, Singapore, and to other countries through Thailand. This excellent multimodal connectivity, inland and sea, offers unique feature for integrated logistics network of the ports.

2 Personnel, Equipment, and Infrastructure

Personnel, equipment, and infrastructure of Aceh ports will influence highly the level of competitiveness of the ports. With recent infrastructure of their competitors, Aceh ports must be able to put provide good and competitive personnel, equipment, and infrastructure. In this respect, Aceh ports should review their vision and mission. This review will lead the need for next development and expansion of the ports in order to sustain the growth and competitiveness.

In order to position the port to be the top 10 ports in the region, Aceh ports have to be capable to handle 2 million TEU annually. This capability must be supported by the availability of sufficient and good personnel, equipment, and infrastructure of the ports. The following are some equipment and infrastructure that Aceh ports should highly prioritize:

1. Number of berths and wharf. How many berth Aceh ports should develop and how long they should be.
2. Depth or draft alongside the berth. For current competitive draft, berths should accommodate at least 15 meters containership draft.
3. Wide or length of the turning basin for allowing ships to hassle free maneuver. For current ship size, the turning basin should be more than 500 meters for allowing the current biggest ship to berth.
4. Number of quay-side cranes, mobile harbor cranes, Rubber-Tyred Gantry (RTG) cranes, and other types of cranes
5. Total area of container yard capacity. It is suggested that the yard can accommodate between 100,000 - 250,000 TEU for the regional competitiveness rate. The wider the container yard area the higher of competitiveness level of the port.
6. The availability of commercial and industrial free zone: free port zone and free trade zone land that are integrated with the port.
7. The availability of port equipment to support better services such as pilotage and towage services with tugboats fitted with fire fighting equipment.
8. The availability of port supportive infrastructures such as fresh water supply, oil supply at berths via pipelines.

3 System and Technology

In addition to above mentioned resources, the ports are also should be equipped with the latest technology and advanced integrated information system. Several technologies and systems are needed

in the port as implemented at Port of Tanjung Pelepas in Malaysia and Port of Singapore and other major ports:

1. Crane automatic steering and position determination system. The ports need differential global positioning system for pinpoint positioning accuracy to avoid misplaced containers and reduce waiting time for loading discharge.
2. Container management system for yard & vessel planning and for facilitating precise container movement.
3. Gate control and monitoring system that ensures smooth flow for all gate transactions and integrates customs gate control systems with the port container management systems to maximize efficiency.
4. Port radar system to ensure safe and efficient management of all vessel traffic movement at the port while enhancing effectiveness during emergency situations.
5. Vessel clearance systems that allows electronic declarations to various related agencies and online approval processes.
6. Systems for safety and security that provide vital information such as the status of every container in the port at any given time.

Port's External Resources

The Strait of Malacca is a huge resource for Aceh ports growth. With more than 50,000 cargo ships every year use the strait, Aceh ports can attract benefit a lot from this growing market. The average increase of container throughputs for the region is estimated about 21 million TEU per year or average increase of 15 per cent per year (see table 1 above). The growing ship sizes and highly growth of the container market especially in the region are the crucial external resource that the ports can capture for growth. The ports also have a good position to support IMT-GT.

The Aceh ports should be connected to well-developed transportation infrastructures network or multimodal transport system such roadway, railway, seaport and airport. The road and rail system will allow the port to transfer containers to a broad inland networks accessible for the whole Sumatera Island, while seaport and airport network will allow the ports to distribute cargoes to remote places that untreated by inland transport. The Aceh ports also should use the existence of other major ports in the region as potential external resources. This use can be afforded through several strategic alliances with the ports.

COMPETENCE-BASED STRATEGY

The port capability in handling the container throughputs is an important measurement employed to assess port growth and performance. If we look at table 1 above, all ports performance is based on the throughputs handling per year. Some ports maintain their performance by 6-10 per cent increase per year while others strive to increase performance to 20-25 per cent per year.

For instance, the port of Tanjung Pelepas in Malaysia starts its operation in 1999 with the throughput volumes from only 20,696 TEU at that year but successfully to increase the throughputs very sharp in 2007 to 5.5 million TEU. This achievement put the port as the third busiest port in the region. With current infrastructures and the current plan for expansion, the port will be capable to handle 8 million TEU annually, to put containers into 29,785 TEU slots with the capacity of the storage 200,000 TEU. Beside that, the port is also capable to handle the biggest containership currently operated, Emma Maersk, of 11,000 TEU with 14 meters draft, and will be able to handle future containerships whose draft less than 19 meters. However, with a dragging works, the port will be able to handle any size of future container vessels. The port is also capable to govern pilotage and towage services for any size of vessels at their turning basin of 600 meters wide.

Aceh ports should formulate a capability or competence-based strategy in accordance to this tendency. They can start with a small amount of container throughputs but with the plan to increase the capability from time to time. Skill and knowledge in enhancing the level of effectiveness and efficiency of the port performance should be increased intensively with concurrently building a fine reputation to the market. High capability to handle port equipments such crane, storage, pilotage, and towage or ability to handle information system and technology is a common competency needed in a port operation.

Port authority also should be able to connect or link the port with logistics supply chain and intermodal transport. Parallel to these activities, the ports should also develop customer loyalty, make use of supportive policy and regulation by the government and exploit external expertise through strategic alliances with other potential partners. The most important thing that Aceh port authority should remember is that all activities intended to increase the level of competency should be value-added, unique, inimitable, durable, and unsubstitutable.

MARKET SHARE STRATEGY

The ports need to evaluate the current logistics market to be entered. Understanding the market uncertainty and evaluating low, moderate, and fast growing market and unserved market is one of the most crucial actions that the port authority should seize. Entering growing market share is a good strategy suggested by many authors. However, developing new market or entering market with unavailability of rivals or serving the unserved costumers is alternative strategies that the port can focus. First mover is always enjoying all advantages since rivals are not available.

In relation to market share strategy, according to Porter (1990a), there are three strategies that a firm or port can use i.e. cost leadership, differentiation, and focus. To apply this, for Aceh ports, they can focus to diversification of market such as bulk, break-bulk, non-bulk or container cargoes at the beginning stage. However, a plan for specific market should be promulgated in order to implement differentiation, cost leadership and focus in services. For example, Aceh port system can focus on entering container market with one deep-sea port can do differentiation in service to be functioned as transhipment hub port while others to be as feeder ports or distributing ports.

OPPORTUNITY SHARE STRATEGY

Opportunity comes in relation to one or more events or reality upon in a time. Understanding and capturing opportunities is an important strategic activity for the ports in formulating strategies for growth. For the case of Aceh, the opportunities have been created by several events and reality: the growth in capacity, size, and draft of containerships, the growth of cargo market especially container market in the region, positioned at the world busiest container traffic of the Strait of Malacca, unserved big hinterland of Sumatera, availability of natural deep-sea for accommodating mega containerships with high draft, and unavailability transhipment hub port at the west part of the straits as this considered as first mover to the industry in that particular area.

It is estimated (based on table 1) that it is about 100 million containers (TEU) pass through Aceh Sea every year. With this amount of container market and large number of the ships, it is a huge opportunity that Aceh ports to be captured for growth. In addition to this market, Aceh ports also have to take opportunity to the unserved hinterland in Sumatera Island or even for the whole Indonesia and other parts of the region. The fact that the port of Belawan in North Sumatera as the only container port in Sumatera is facing some difficulties and limitations to increase growth and sustain competitiveness following the fast growing market and maritime technology and highly competitive environment in the region. If Aceh port system knows this fact or opportunity and formulate a sound strategy to serve the unserved hinterland of Sumatera and to complement with the port of Belawan,

then the Aceh ports can afford a fast growing port in the region. As aforementioned, cost leadership, differentiation, and focus should be taken into account in formulating this opportunity.

COMPETITIVE STRATEGY

In a highly competitive environment, competitive strategy plays an important role for a port to grow and sustain competitive advantage. The aim of the strategy is how a port can compete with its rivals and sustain growth. To achieve this, ports have to create and sustain core business and services that are unique to the port and superior to competitors. In addition to the uniqueness, the ports have to think about durability, inimitability, and substitutability and at the same time put values to the businesses and services. These things should be focused either to shippers and their ancillary service providers or to inland logistics service providers. As pointed by Porter (1990a), those things should be given proper attention to cost leadership, differentiation, and focus of the business and services.

As minor or small ports that intent to grow, Aceh ports should not compete with super power port like the Port of Singapore and Port Klang but do strategic alliances with them to grab many opportunities, learn and obtain skills and competency, and deploy their expertise and resources to support the growth and to some extend to rise up the competitiveness of the port. Internally, Aceh ports have to strengthen the infrastructures, reformulate functions and strategies, increasing investment, and identifying, allocating and enhancing resources values.

COOPERATIVE STRATEGY OR STRATEGIC ALLIANCES

Resources to any firm including port are something limited in nature. While competitiveness is continuously growing, the ports should think how to increase competitive advantage of their ports even though the fact that their resources are imperfect and incomplete. The ports have to put values to the resources and keep strengthening and enhancing those values continuously and other efforts as described in the competitive strategy. Another effort that the ports can do is through cooperative strategy or strategic alliances.

When the ports do strategic alliances, it means that the ports put cooperation between the ports and other independent firms that can be other ports or logistics companies or other related service providers. In strategic alliances, the ports may choose to carry out one or more projects or specific activities jointly that in certain conditions allow members of the alliances to deploy others' necessary skills and resources to perform the tasks. In many cases, ports use other resources that imperfect and incomplete for them to accomplish the assignment and at the same time to strengthen their competitive position.

To grow and achieve sustainable competitive advantage, Aceh ports should do strategic alliances with several firms and service providers. Alliances with major ports in the region such as Port of Singapore, Port Klang, and PTP sound a good strategy since they have superior capability and competency as well as resources that Aceh ports can learn and use. Another alternative is doing alliances with ports in the world fastest growing economies, China and India as these two economies promise a very high growth container market for the ports. Cooperation with other multimodal transport firms, shippers, and inland logistics service providers is a must to ensure the smooth distribution of the commodities to ports. At the first stage, Aceh ports should collaborate with many parties and gradually reducing the alliances selectively with only those parties that strategically present the benefit and advantage to Aceh ports.

GROWTH AS A SYSTEM RATHER THAN AS A SINGLE PORT ENTITY

Traditional development of a port devises and formulates strategy for growth as a single entity or self-serving functions. Port growth is looked as just an ordinary firm growth. However, port has uniqueness in operation and growth compared to business firms. In 1992, UNCTAD re-emphasized the importance of shipping and ports as services to trade and as facilitators to trade, rather than as internally-driven, self-serving functions (Robinson, 2002). Robinson argued that port operational efficiency is no longer sufficient condition for port growth strategy, in fact, the new trade and demands on ports and the new roles of ports likely required new port development policies and strategies.

While Robinson perceived ports as functional elements in logistics systems, for strategic management, we prefer to position a port as an element in port system. Taking definition described by Notteboom and Rodrigue (2005), a port system is defined as a group of ports sharing a similar geographic characteristic, e.g. coastline, bay and serving similar or to some extent overlapping hinterland regions. In relation to our discussion, a port system should be added of having or managed by one port authority that may consist of one fixed authority or several independent port authorities form a jointly authority.

In case of Aceh, the port authority is the provincial port authority established by Aceh government and it may consist of representative from many ports authorities in the region including other persons and experts in the field. Since members of Aceh port system comprises several ports in Aceh, we should focus only to some major ports such as Sabang Port, Uleelheue Port, Malahayati Port, Lhokseumawe Port in east coast, and Meulaboh Port in west coast (see figure 4). Hence, for devising and formulating strategies for growth, the port should be seen as a member of a group of ports. Each member should play unique functions and activities that complement each other.

For instance, the Sabang Port can play an important function as deep-water transhipment port to receive mega containerships where the Lhokseumawe Port should be functioned as major hub port in the system for logistics distribution. Other ports in the system can act as feeder ports to the transhipment and hub ports. While these ports play their unique functions, at the same time, they run their regular activities but still need to focus on competitiveness (see figure 5). These actions will allow harmonizing and complementary among the ports. All ports in the system should be allowed to perform all tasks, sea segment and inland network.

As all ports in the system are government-owned, then there will be no difficulties to implement this concept. However, to increase the competitiveness of each port, the government should support the port with the establishment of free trade zone (FTZ) and free port zone (FPZ) and their policies and regulations including policies and regulations to attract investors to take parts in the port industry (see figure 6).

In this concept, the port authority and the government, where appropriate in the port area should allow zones for putting or enhancing values of the cargoes or commodities. This activity will be a catalyst for industrial and economic development of the region. Of course, this can only be done to certain commodities while at the same time allowing door-to-door service of the goods.

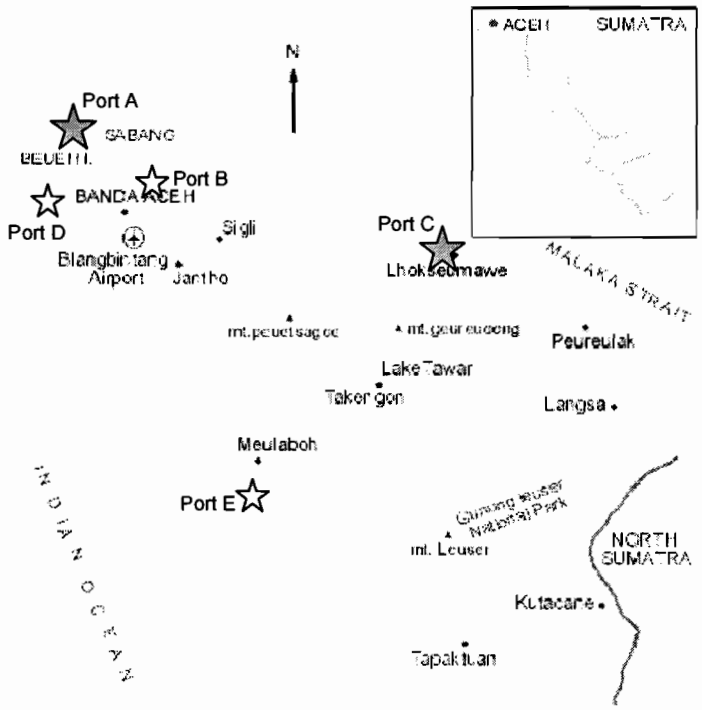


Figure 4: Port positions in Aceh Port System

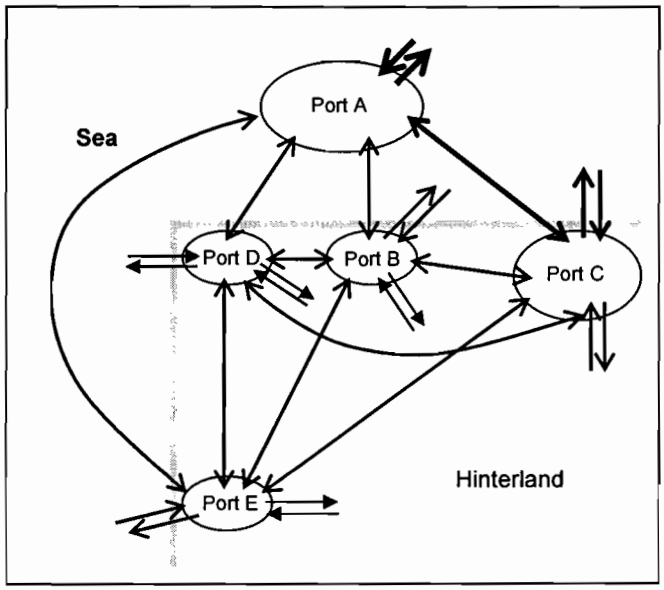


Figure 5: Interconnection among the ports in Aceh Port System

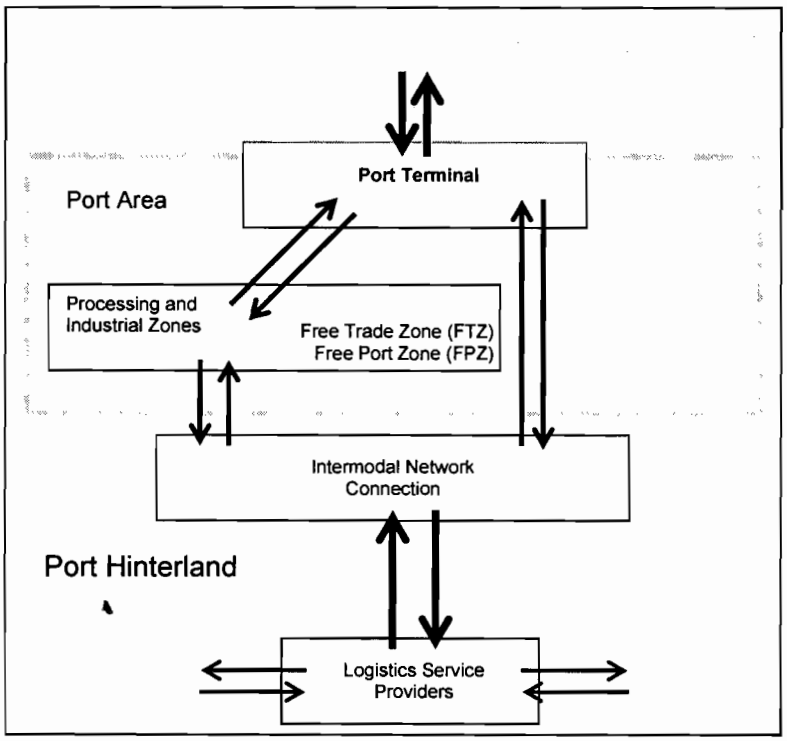


Figure 6: Integrated and interlink activities in cargo distribution in a port

A port has to be linked to multimodal transport network such as airport, inland waterway, road, and rail in addition to its network with the shippers and their ancillary service providers and its port partners. This network with other advantages will sustain the growth and competitive advantage of the ports.

CONCLUSION

Despite the political matters, Aceh ports are having the same problems of growth. Aceh ports should grow as a port system rather than growing as a single entity port or self-serving function or internally driven. Each member of the ports in the system should complement each other with each port has its unique function based on their resources and opportunities for growth. The ports also have to be connected to multimodal transport network and to allow free trade and free port zones established in the ports area. As Aceh port system located in a highly and dynamic competitive environment, to achieve and sustain growth, Aceh port system should employ various strategies and each of those strategies has its own stages of application by taking into account the level of competitiveness of the industry.

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